Find the amplitude of the function and use the language of transformations to describe how the graph of the function is related to the graph of y = sinx

A) $y = 3\sin x$ B) $y = \frac{3}{4}\sin x$ C) $y = -5\sin x$

Find the period of the function and use the language of transformations to describe how the graph of the function is related to the graph of y = cosx

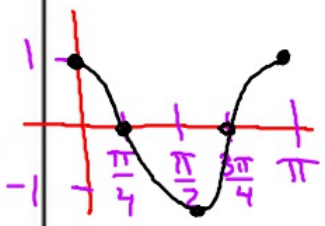
$\text{period} = \frac{2\pi}{b}$

$y = \cos(bx)$

A) $y = \cos(2x)$ (Amp)

$y = \cos(2x)$

$\text{period} = \frac{2\pi}{2} = \pi$

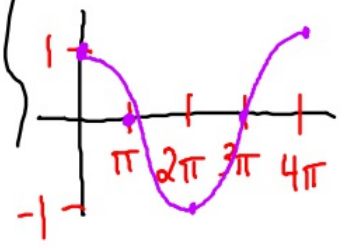


B) $y = \cos\frac{x}{2}$

$y = \cos\left(\frac{1}{2}x\right)$

$\text{period} = \frac{2\pi}{\left(\frac{1}{2}\right)} = 4\pi$

$2\pi \div \frac{1}{2} = 2\pi \cdot 2$

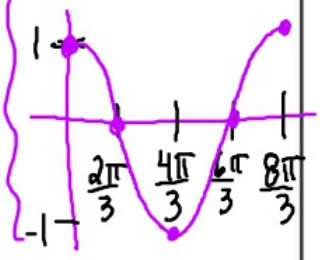


C) $y = \cos\left(\frac{-3x}{4}\right)$ (angle)

$y = \cos\left(\frac{3x}{4}\right)$

$\text{period} = \frac{2\pi}{\left(\frac{3}{4}\right)} = \frac{8\pi}{3}$

$2\pi \div \frac{3}{4} = 2\pi \cdot \frac{4}{3}$

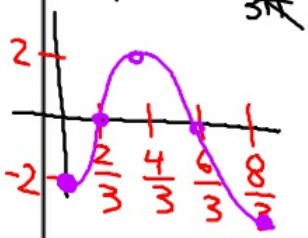


c) $y = -2\cos\left(\frac{3\pi}{4}x\right)$

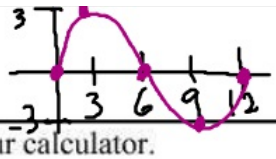
Amp = 2

period = $\frac{2\pi}{\left(\frac{3\pi}{4}\right)} = \frac{8}{3}$

$2\pi \div \frac{3\pi}{4} = 2\pi \cdot \frac{4}{3\pi}$



D) $y = 3\sin\left(\frac{\pi}{6}x\right)$ Period = $\frac{2\pi}{\left(\frac{\pi}{6}\right)} = 12$

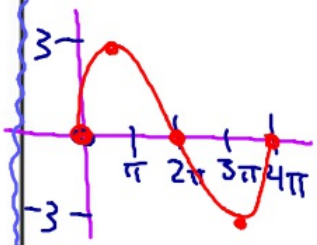


Graph 1 period of the function without using your calculator.

A) $y = 3\sin\frac{x}{2}$

Amp = 3

period = $\frac{2\pi}{\left(\frac{1}{2}\right)} = 4\pi$

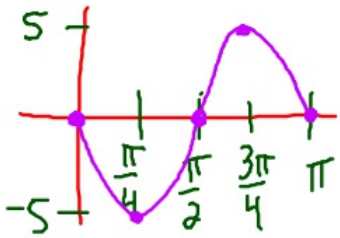


B) ~~$y = 5\cos 2x$~~

$y = 5\sin(-2x)$

$y = -5\sin(2x)$

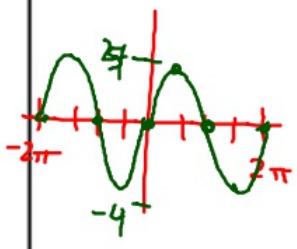
Amp = 5 period = $\frac{2\pi}{2} = \pi$



Identify the ~~maximum~~ and minimum values and the zeros of the function in the interval $[-2\pi, 2\pi]$. Use your understanding of transformations, not your calculator.

period = 2π

Amp = 4



A) $y = 4\sin x$

Max: $\left(\frac{\pi}{2}, 4\right)$ $\left(-\frac{3\pi}{2}, 4\right)$

Min: $\left(\frac{3\pi}{2}, -4\right)$ $\left(-\frac{\pi}{2}, -4\right)$

Zeros: $(0,0)$

$(\pi, 0)$ $(-\pi, 0)$

$(2\pi, 0)$ $(-2\pi, 0)$

B) $y = -2\cos\frac{x}{3}$

period = $\frac{2\pi}{\left(\frac{1}{3}\right)} = 6\pi$

Max: None

Min: $(0, -2)$

Zeros: $\left(\frac{1}{4}(6\pi), 0\right) = \left(\frac{3\pi}{2}, 0\right)$

$\left(-\frac{3\pi}{2}, 0\right)$